Acceptance of MOOCs for Engineering Education In india

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Abstract

MOOCs are in limelight recently. They are getting more and more attention from media ,education professionals and technology aware people from the society. MOOCs create enormous opportunity for continuing education. Anybody from anywhere can learn anything with the help of MOOCs. MOOCs became popular worldwide because of their free, quality , massive and attractive features. In this paper author explains concept of MOOCs, importance of MOOCs for engineering education, MOOCs in India , Moocs Globaly,Comparision of MOOCS in india and globally , Challenges and recommendations and Conclusion.

Keywords: MOOCs, Engineering College Libraries, Blended Education, Flipped Classroom

1. Introduction

MOOCs Stand For (Massive Open Online Courses). MOOCs offer online courses with the help of Internet. Anyone can join from anywhere for any course. Most of reputed Universities are joining with this noble venture. The internet is the most basic thing to join for online courses. They cut cost of university education with quality education.

Universities are motivated to put their courses online by setting up open learning platforms such as edX. Coursera and Udacity platforms are working for commercial purpose with prestigious world universities. They offer online courses for free or charging nominal fee for certification and credit for the award. Pearson and google are also planning to move into the higher education sector as global players and likely to adopt MOOC based concept as a part of their plan. Open Unversities of UK has launched a new company named Futurelearn. They are giving a range of free ,open ,online courses.

Indian Students are joining more in numbers to edX. CEO of EdX , Mr . Anant Agrawal said in his keynotes that every year Indian students register to edX in 1,00,000 to 1,50,000 numbers. With big Indian students mass on edX we can understand the trend and mindset of students. NPTEL ,IIT Bombay ,IIT Delhi started Free Online courses. Our Prime Minister shreee Narendra Modi gifted "Swayam Platform" on birthday of Shree Pandeet Dindayal Upadhyay. MHRD has been planning number of projects for open and free education.

2. Importance of MOOCs For Engineering

There are 5000 engineering Colleges affiliated to different Universities in India. AICTE is monitoring body of technical education in India. In earlier days there are 200 engineering colleges. Number of colleges added in last 30 years. The students enrolment number in these colleges are now over 1,25,000. GER (Gross Enrolment Ratio) is very low in comparing to other countries. India has to plan to increase it. Different Universities have their own different syllabus . Syllabus are rigid and very much longer. In semester system they can not study every point in deep .Most of engineering colleges complain that

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they cannot get qualified faculties. The quality of education matter a lot for technical educations.MOOCs are helping learners to take benefit from knowledgeable professors from all over the world.

Another serious issue in engineering, that poor and rural students can not study because of their financial crisis or other issues. MOOCs is offering online free course and can be used to enhance the skill. NPTEL has also started free courses on Engineering. Different platforms worldwide like edX, Udacity and Coursera takes the world's famous and prestigious universities at your home. It might be supported to "EDUCATION FOR ALL"

3. MOOCs in India

Many initiatives have been taken by the Indian Government for Open Course Education. Sakshat,National Digital Repository of IGNOU, EDUSAT Consortium For Educational Communication(CEC), ERNET, Shishya(XI-XII Standards,CBSE Board) and Vidya Vahini(School Teacher and Students).

3.1. e-PG Pathshala

The MHRD, under its National Mission on Education through ICT (NME-ICT), has assigned work to the UGC for development of e-content in 71 subjects at postgraduate level. This program is executed and managed by INFLIBNET Centre, Gandhinagar. The content and its quality are the key components of the education system. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being developed under this initiative named e-PG Pathshala.It may be first MOOC in India which offer more than 71 Subjects.

Figure: 1

3.2 Apna Course:(Profit Making)

A well diversified group with Global presence across verticals of Managed Business & Consultancy, Financial Planning and Wealth Management, Education and IT Consultancy Solutions. Spearhead EduOnline Private Limited (SEOPL), headquartered in Bangalore, is a subsidiary of Spearhead Services Private Limited, with a focus on the online Education space. Visit www.SpearheadEduOnline.com to know more. Spearhead Services Private Limited (SSPL), the flagship business unit of the Spearhead group, is an ISO certified India based company with expertise in the areas of Finance, Accounting, Taxation, HR, Payroll and allied backend services for nearly 2 decades. The company serves many of the top blue chip companies more as a business partner than just a service provider. The company is spread across geographies with international locations at Singapore and Sri Lanka and across 5 cities in India.

3.3. myBskool.com: (Profit Making)

myBskool is India's Largest Online B- School.Over 8 Lakh Students, over 1.5 Million learning hrs a month, 6000+ Video Lectures & Weekly Live Classes, Top-Notch Faculty & Premium Partnership.

The vision of the ThinkBig Edu Venture is to empower and facilitate a global student base to learn from the very best educators and institutions re-

gardless of subject matter, location, and time. This transformational delivery model of high quality education has opened up new avenues of learning and lifelong skill development for the knowledge workforce.

Cutting edge cloud-based Social Learning Platform with mobile access and social interaction features provide a conventional classroom like environment with all the convenience and flexibility of a Distance Education Program. Through this platform and our partnerships with pre-eminent institutions of higher education, we deliver rigorous academic programs to a global student base.Link is http://www.mybskool.com/aboutus.php

3.4. Engineering MOOCs In India

3.4.1. NPTEL

Even before MOOCs became popular, the IITs was offering open learning content through the National Program on Technology Enhanced Learning (NPTEL), a joint initiative of the seven IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee), Indian Institute of Science, Bangalore, and IT majors such as TCS and Cognizant, apart from Google and Nasscom. during the years 1999-2003. According to Rajan Anandan, managing director and vice-president, Google India, the number of views on NPTEL channels beat popular bollywood channels on YouTube. "The only way to scale up education in India is to leverage technology,".Now, NPTEL has started online course in computer science ,electrical engineering ,mechanical engineering ,ocean engineering,management ,humanities ,music etc..The three courses are already completed in 2014. Fifteen courses will show on site on different subject.They grant certificate for particular course. Certificate is jointly given by NPTEL,MHRD and NASSCOM. It is a free course with nominal fees for certification. Anybody from anywhere can join to this course.MOOC's faculties are IIT professors. Link is https://onlinecourses.nptel.ac.in/explorer

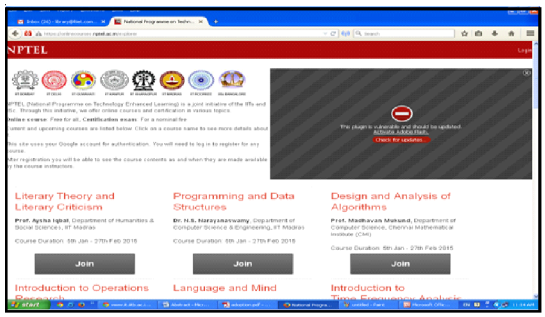


Figure: 2

3.4.2. IIT Bombay

Three courses from IIT-Bombay has been completed in 2014 .They provide the courses via edX, a popular Massive Open Online Course (MOOC) platform. MOOCs offer people access to information free of cost via the web, and it is for the first time that courses from India will make it to the global platform.

The courses from IIT-Bombay — one on 'introduction to computer programming-1 ' by Prof Deepak B Phatak from the Department of Computer Science and Engineering, introduction to computer programming part-2 and another on 'thermodynamics' by Prof Udau N Gaitonde will go live on edX on July 28,2014 sources said.

India is also looking to tap into MOOCs. The University Grants Commission has set up a committee under former IIT-Kanpur director Prof S G Dhande to assess the possibility of MOOC-based learning in India. The HRD Ministry is also looking at ways to set up a platform similar to edX.

3.4.3. IIT Delhi

IIT Delhi offer course on "Web Intelligence and Big Data"in Computer Engineering.It was 9 weeks course.The course already finished on 21st June 2014 .Course Instructor is professor Dr.Gautam Shroff.They Provide the course via Coursera Platform.

4. MOOCs Globally

4.1. edX

edX offers best open online courses and MOOCs from the best Universities of the world.edX is non profit platform which offer online courses from Berkeley ,MIT,Texas Univesrity ,Harvard University and other 52+ member institutes. .It is non profit initiatives founded and governed by MIT and Harward. IIT Bombay and BITS pillani are two Indian contributors for edX. They are offering online courses by using edX platform. EdX platform is non-profit and opensource. Their aim is to provide education anywhere to anyone. They are conducting research and publishing on research that how students learn from MOOCs.

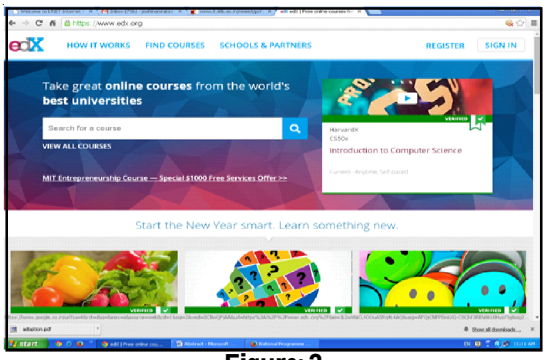
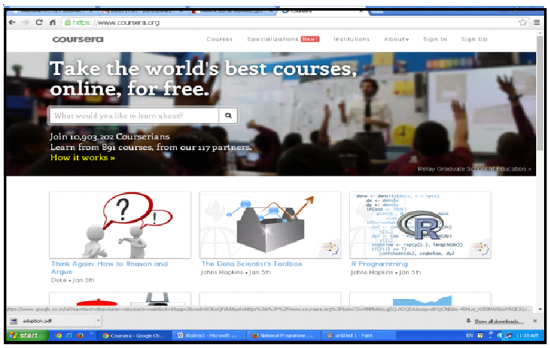


Figure: 3

4.2. Coursera

Coursera provide universal access to the world's best education. Top Universities like Univerisity of Toronto ,Standford Univerisity,University of Manchester ,other top universities and organizations are offering MOOCs through Coursera Plaform. It offers courses for free to anyone.They offer short video,interactive puzzle,peer graded assignment and verified certificate.Coursera helps to learn faster and better.They designed their platform on proven teaching methods.



4.3. Udacity

Udacity platform is born from Standford Univerisity experiment on "Introduction to Artificial Intelligence".Their aim to change future of education by connecting employment, skill and relevant education.They are building "University by Silicon valley", newly online university which will teach actual programming skills needed by industry employers. Facebook, Google ,AT&T Salesforce,Cloudera etc. helps to offer nanodegree credentials. It is designed to support to professionals to become Web Developers, Mobile Developers and Data Anyalysts.

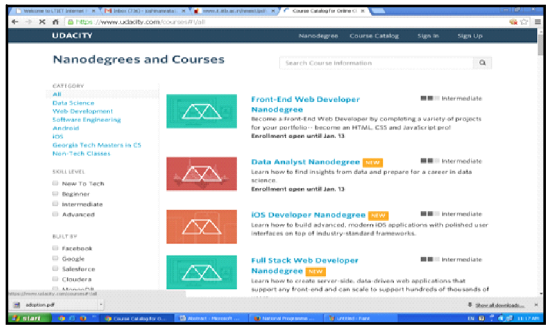


Figure :4

4.4. Udemy

Udemy offers 22,000+ course in mostly every subject.5 million + Students are enrolled to Udemy Platform.Each Course is taught by expert instructor and all course are on demand.Udemy is not giving free online education.

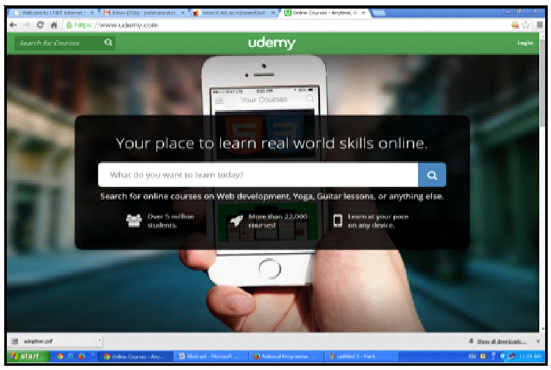


Figure : 5

4.5. Khan Acedemy

It offers personalized learning dashboard, instructional videos and practice exercises that provide pace to learners to study their own place and beyond the classroom. Their math mission guides learners from state-of-the-art and adaptive technologies. They also partnered with NASA, the California Academy of Sciences,the Museum of Modern Art and MIT to offer specialized content. Khan brothers work hard for coaches for their students. Millions of students can learn from their own pace on Khan Academy. Video lessons translated into almost 40 languages, including in addition to the Spanish, Brazilian, French, and Portuguese.

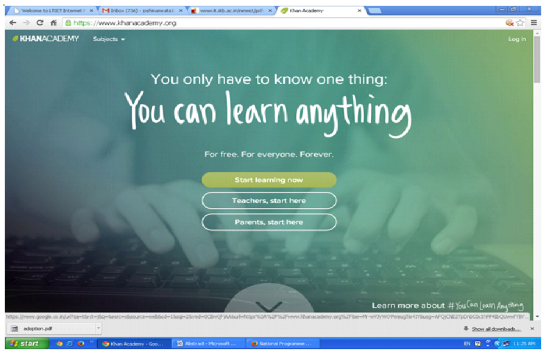


Figure : 5

4.2 Comparision

As per Table-1

Table 1 :Comparision of MOOCs

MOOCs	Launch	Taught by	Credential	Free ,Paid or Nominal Charge (NC)	Known for	Supported By	Experience
Khan Academy	2008	Khan and others	Badges	Free	Video chunk library, analytics	Grants including Google and Gates Foundation	Screen casts, videos, forums
Udemy	2010	Professors and professionals	Certificate	NC	Giving instructors monetization option	enterprise funds + 30% of paid course sales	Video Lectures, Textbooks materials ,team projects, Forum
Udacity	2011	Stanford profs	Certificate	NC	Stanford experiment turned startup, connect talent with companies	enterprise funds	small videos, quiz, response

Coursera	2012	Profs from big name schools	Certificate	NC	Andrew Ng's spinoff from MOOC test at Stanford; peer eval voting	Silicon Valley venture funds Videos	Videos, question grade
edX source,	2012	Harvard MIT professors	Certificate	Mix and (Nominal charges for Certification)	edX open source and non-profit delivery platform, Research outcomes	60 Million Dollar from MIT and Harvard	edX open videos
e-PG Pathshala	2014	Subject expert		Free	Covering 71 subjects at post graduate level	MHRD under National Mission ICT	Textual Documents uploaded in some subjects ,In progress
Apna Course (Profit making)		Subject experts	Certificate (depend on program)	Paid	Signature Track, Global Certification, self paced Courses, Life time validity course	Spearhead Edu online pvt.ltd.	Online video Lectures
myBskool	2014	professor from IITs and IIMs and Subject Experts	Certificate	Paid	UGC accredited Program domain specific program Govt. of India Certified Programs	ThinkBig Edu-venture pvt.LTD.	Video Lectures and textbook material
IIT Delhi	2013	IIT professor	Certificate	Free	Free Exam and certification on accomplishment of course	Coursera	Video Lectures ,prerequisite ,Forum
IIT BombayX	2014	IIT professor	Certificate	Mix (Nominal charges for certification)	First Indian MOOC Launchedon edX platform	Harward and MIT	6-12 week short erm programs , tfree online videos, forum
NPTEL Online	2014	IIT professor	Certificate	Mix (Nominal charges for certification)	Massive online data in engineering subject, quality faculty of IITs	joint initiative of IITs and IISc, funded by MHRD	1 month to 5 month certification program ,good quality video

5. Challenges and recommendations

5.1. Challenges

- Takes too much time and assume too much knowledge.
- Too basic and lecture fatigue.
- MOOCs cannot replace personal teaching experiences.Laboratory experiences and field work cannot be replaced by MOOCs. Practical Sessions in the laboratory are always performed under observation of faculties.

⏩ MOOCs are only accessible through internet.Persons who have Intenet connectivity can easily join with MOOCs .Mobiles are becoming cheaper now. If data Connection Charged reduced,any mobile user can join with internet through mobile. India is suffering from digital devide.After 67 years of independence,electricity can not reach to some rural area. The Indian government should think over this serious issue.

5.2. Recommandation of Blended education with MOOCs.

Blended MOOCs can be more powerful then conventional teaching techniques. IIT Bombay proposes blended education by MOOCs on their flipped classroom Experience. In the model of blended MOOCs students can study available digital material on their own pace. They can view pre-recorded lectures. After that they attend classroom tutorials and discussion sessions.They are solving problems in groups under the supervision of a faculty. This model has been tried in IIT Bombay and at some other sister institutions.

6. Conclusion

In India, the number of students cannot enroll for their desired regular courses because of the limited seats at college and university level. MOOCs offers to open up higher education by providing informal,supplementary and affordable completion of university education for free or at a low cost for learners who are interested in learning. Universities can start SOOCs(Selective Open Online Course) with the help of MOOCs. Indain government are in process to create MOOCs in higher education through e-PG Pahshala.IITs are already offering their open certificate courses on selective subjects.Nowadays MOOCs are playing supportive role of traditional education system.Students should take benefit of free MOOCs all over the world.It is duty to librarians too create more awareness among society.Working People and house wives who can not join regular education, MOOCs provides learning opportunity to them to educate from their desired universities.

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